

P a t e n t C l a i m s :

1. An electrical device for self-clocked controlled
 5 pseudo random noise (PN) sequence generation and
 comprising a plurality of sequence generation means (201)
 adapted to:

- output a plurality of sequence values (Z_t) on the basis
 of a plurality of clock values (C_t),

10 c h a r a c t e r i z e d in that said electrical device
 further comprises:

- step pattern generation means (202) adapted to select a
 step pattern, comprising said plurality of clock values
 (C_t), from a plurality of possible step patterns on the
 15 basis of a step pattern select signal (W_t).

2. An electrical device according to claim 1, c h a r -
 a c t e r i z e d in that said step pattern select
 signal (W_t) is derived on the basis of a combined value
 20 (U_t) and one or more previously derived step pattern
 select signals (W_{t-1}).

3. An electrical device according to claim 2, c h a r -
 a c t e r i z e d in that

- 25 • said plurality of sequence generation means (201) is
 further adapted to output a plurality of step control
 values (u_t), and
- said combined value (U_t) is provided on the basis of
 said plurality of step control values (u_t) and on the
 30 basis of a plurality of prior clock values
 (C_{t-1}).

4. An electrical device according to claim 2 or 3,
 c h a r a c t e r i z e d in that the number of said
 35 plurality of possible step patterns is 6, and in that

said pattern select signal (W_t) is derived as: $U_t + W_{t-1} \text{ MOD } 6$.

5. An electrical device according to claim 2 or 3,
 5 c h a r a c t e r i z e d in that the number of said plurality of possible step patterns is 6, and in that said pattern select signal (W_t) is derived as: $U_t + a_1 W_{t-1} + a_2 W_{t-2} + a_3 W_{t-3} \text{ MOD } 6$, where a_1 , a_2 , and a_3 are pre-selected constants.

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6. An electrical device according to claim 2 or 3,
 c h a r a c t e r i z e d in that if the number of said plurality of possible step patterns is not a prime number, then said pattern select signal (W_t) is derived
 15 on the basis of said combined value (U_t) and said previously derived step pattern select signals (W_{t-1}) using a Chinese remaindering technique.

7. An electrical device according to claims 1 - 6,
 20 c h a r a c t e r i z e d in that said plurality of possible step patterns is: $(0,0,1,1)$, $(0,1,0,1)$, $(1,0,0,1)$, $(0,1,1,0)$, $(1,0,1,0)$, $(1,1,0,0)$.

8. An electrical device according to claims 1 - 7,
 25 c h a r a c t e r i z e d in that said device further comprises function generating means (203) adapted to calculate an output value (Out_t) as the sum of said plurality of sequence values (Z_t) MOD 2.

30 9. An electrical device according to claims 1 - 8, c h a r a c t e r i z e d in that said plurality of sequence generation means is m-sequence generators.

10. An electrical device according to any one of the
 35 previous claims, c h a r a c t e r i z e d in that said device is used in a mobile telephone.

11. A method of self clock controlled pseudo random noise (PN) sequence generation, comprising the step of:

- outputting a plurality of sequence values (Z_t) on the basis of a plurality of clock values (C_t),

characterized in that said method further comprises the step of:

- selecting a step pattern, providing said plurality of clock values (C_t), from a plurality of possible step patterns on the basis of a step pattern select signal (W_t).

12. A method according to claim 11, characterized in that said step pattern select signal

- 15 (W_t) is derived on the basis of a combined value (U_t) and one or more previously derived step pattern select signals (W_{t-1}).

13. A method according to claim 12, characterized in that

- a plurality of step control values (u_t) is output, and
- said combined value (U_t) is provided on the basis of said plurality of step control values (u_t) and on the basis of a plurality of prior clock values
- 25 (C_{t-1}).

14. A method according to claim 12 or 13, characterized in that the number of said plurality of possible step patterns is 6, and in that said pattern select signal (W_t) is derived as: $U_t + W_{t-1} \text{ MOD } 6$.

15. A method according to claim 12 or 13, characterized in that the number of said plurality of possible step patterns is 6, and in that said pattern select signal (W_t) is derived as: $U_t + a_1 W_{t-1} + a_2 W_{t-2}$

+ $a_3 W_{t-3} \text{ MOD } 6$, where a_1 , a_2 , and a_3 are pre-selected constants.

16. A method according to claim 12 or 13, c h a r a c -
 5 t e r i z e d in that said pattern select signal (W_t) is
 derived on the basis of said combined value (U_t) and said
 previously derived step pattern select signals (W_{t-1})
 using a Chinese remaindering technique, if the number of
 said plurality of possible step patterns is not a prime
 10 number.

17. A method according to claims 11 - 16, c h a r a c -
 t e r i z e d in that said plurality of possible step
 patterns is: (0,0,1,1), (0,1,0,1), (1,0,0,1), (0,1,1,0),
 15 (1,0,1,0), (1,1,0,0).

18. A method according to claims 11 - 17, c h a r a c -
 t e r i z e d in that said method further comprises the
 step of calculating a value (Out_t) as the sum of said
 20 plurality of sequence values (Z_t) MOD 2.

19. A method according to claims 11 - 18, c h a r a c -
 t e r i z e d in that said plurality of sequence values
 (Z_t) is generated by a plurality of m-sequence
 25 generators.

20. A method according to claims 11 - 19, c h a r a c -
 t e r i z e d in that said method is used in a mobile
 telephone.

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